

PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

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| Applicant's or agent's file reference 0000054809 | FOR FURTHER ACTION See Form PCT/PEA/416 | |
| International application No. PCT/EP2004/006893 | International filing date (day/month/year) 25.06.2004 | Priority date (day/month/year) 02.07.2003 |
| International Patent Classification (IPC) or national classification and IPC C07D213/803, C07D213/80, C07D401/04 | | |
| Applicant BASF AKTIENGESELLSCHAFT et al. | | |
| <p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input type="checkbox"/> sent to the applicant and to the International Bureau) a total of sheets, as follows:</p> <p><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p> | | |
| <p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the opinion</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p> | | |
| Date of submission of the demand 30.04.2005 | Date of completion of this report 30.06.2005 | |
| Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465 | Authorized Officer Telephone No. +49 89 2399- 8272 Scruton-Evans, I.  | |

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/EP2004/006893

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
 - ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
 - ☐ international search (under Rules 12.3 and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

Description, Pages

1-12 as originally filed

Claims, Numbers

1-49 as originally filed

☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3. ☐ The amendments have resulted in the cancellation of:
 - ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
 - ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):

* If item 4 applies, some or all of these sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT
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Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

| | | |
|-------------------------------|-------------|------|
| Novelty (N) | Yes: Claims | 1-49 |
| | No: Claims | |
| Inventive step (IS) | Yes: Claims | |
| | No: Claims | 1-49 |
| Industrial applicability (IA) | Yes: Claims | 1-49 |
| | No: Claims | |

2. Citations and explanations (Rule 70.7):

see separate sheet

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

The following documents cited in the search report are referred to in this communication;

- D1: US-A-5 378 843 (STRONG HENRY L) 3 January 1995 (1995-01-03)
- D2: US-A-5 614 635 (MILLER PAUL E) 25 March 1997 (1997-03-25)
- D3: US-A-5 334 576 (DOEHNER JR ROBERT F ET AL) 2 August 1994 (1994-08-02)
- D4: US-A-6 080 867 (WU WEN-XUE) 27 June 2000 (2000-06-27)

With regard to the requirement for novelty (Article 33(2) of the PCT), none of the documents D1-D4 discloses the use of an oxidising agent for the in-situ removal of impurities from a saponified solution of a pyridine-2,3-dicarboxylic acid ester as required by independent claims 1, 16 and 33 of the present application. Article 33(2) of the PCT thus appears to have been satisfied.

With regard to the requirement for inventive step, the problem underlying the present application has been stated to have been the provision of a method of improving product quality of pyridine-2,3-dicarboxylic acids. The solution provided by the Applicant is the removal of impurities during the manufacturing process by the addition of an oxidising agent to the saponified solution of the diester. One general example has been given, without specification of which diester was used, whereby a purity of 98.9% was obtained. The man skilled in the art, faced with the problem as defined above, would have had no direct incentive from the prior art to use an oxidising agent as required by the application, but the technical features of the independent claims are not considered to be sufficiently detailed to draw the conclusion that all subject matter falling within the claims could be expected to provide a solution to the problem. Specifically, the diester is only specified in claims 15, 31 and 48, the "amount effective to remove impurities" is only specified when for hydrogen peroxide in claims 7, 8, 22, 23, 39, 40 and the nature of the oxidising agent only in claims 4, 19, 36. Also the use of terms such as "from a darker colour to a lighter colour" in claims 9, 24 and 41 are considered to be subjective, and not technical features. Thus before an inventive step can be acknowledged, it is considered that all of the essential technical features should be included in the independent claims,

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such that it is plausible that all subject matter claimed satisfies the requirements of Article 33(3) of the PCT.